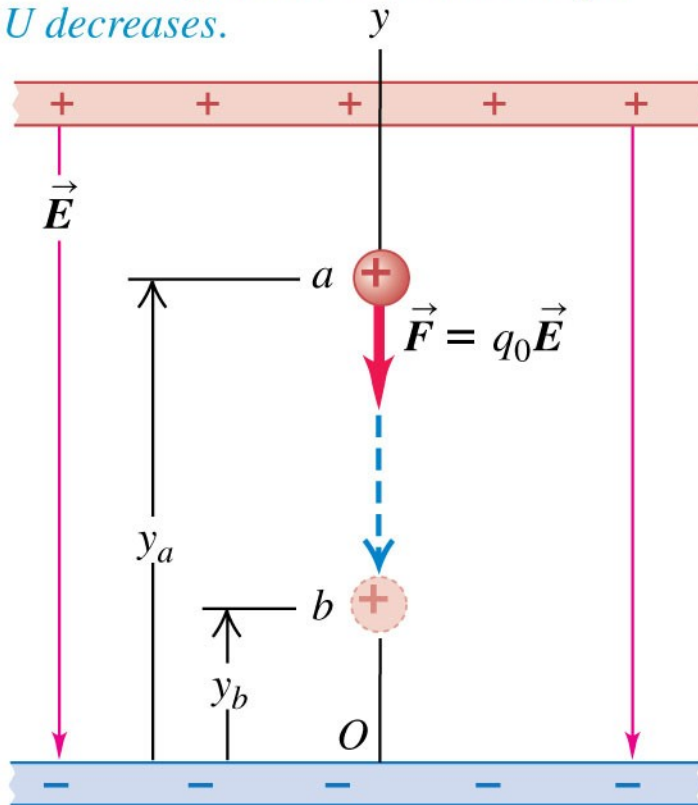


# Potential Energy in a Uniform Electric Field

FIG. 1a

(a) Positive charge moves in the direction of  $\vec{E}$ :

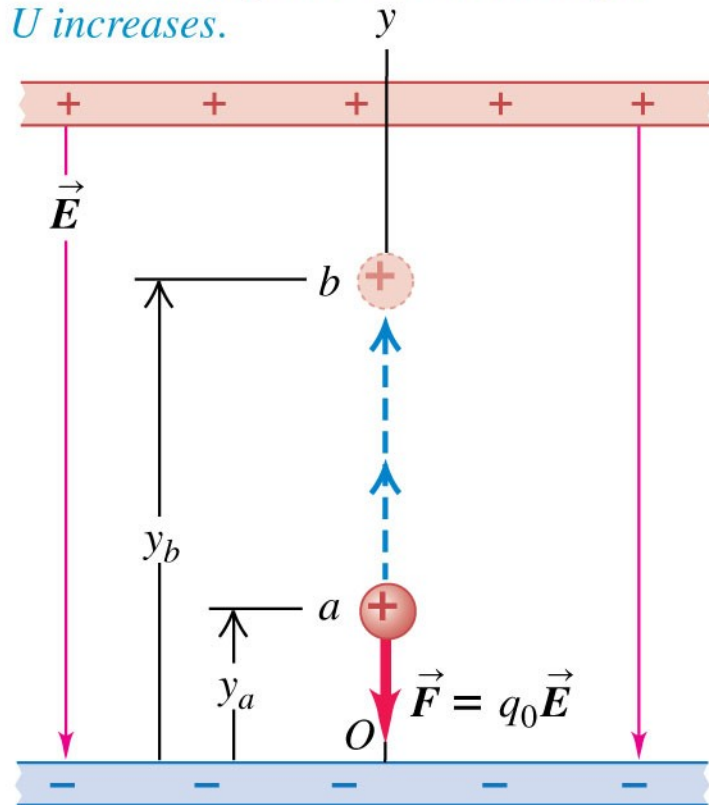
- Field does *positive* work on charge.
- $U$  *decreases*.



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(b) Positive charge moves opposite  $\vec{E}$ :

- Field does *negative* work on charge.
- $U$  *increases*.

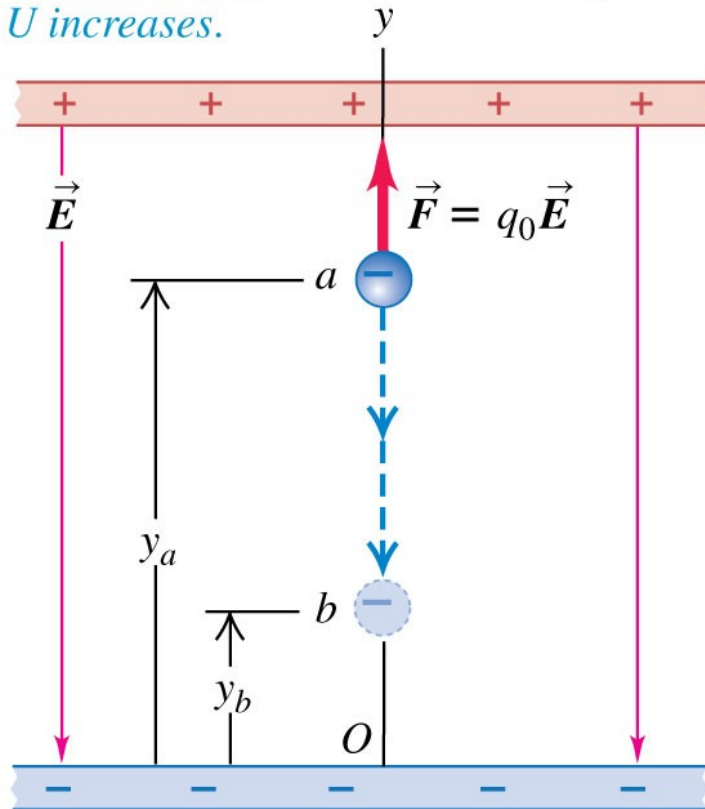


# Potential Energy in a Uniform Electric Field

FIG. 1b

(a) Negative charge moves in the direction of  $\vec{E}$ :

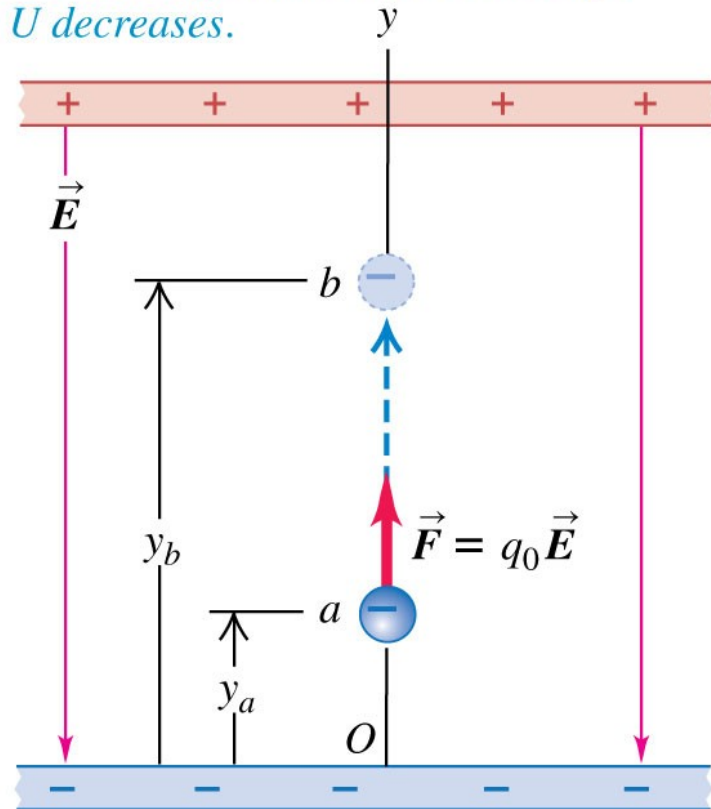
- Field does *negative* work on charge.
- $U$  *increases*.



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(b) Negative charge moves opposite  $\vec{E}$ :

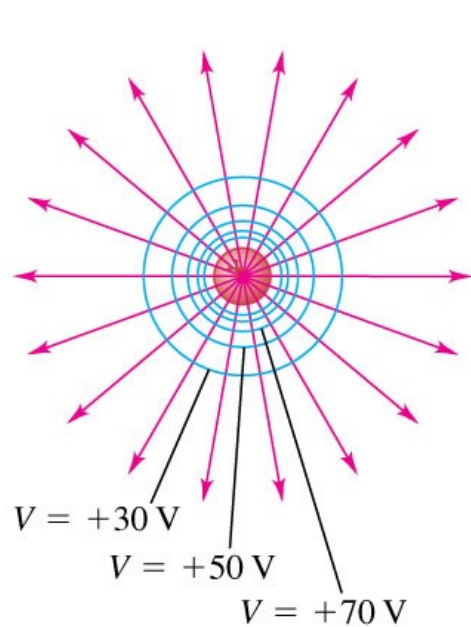
- Field does *positive* work on charge.
- $U$  *decreases*.



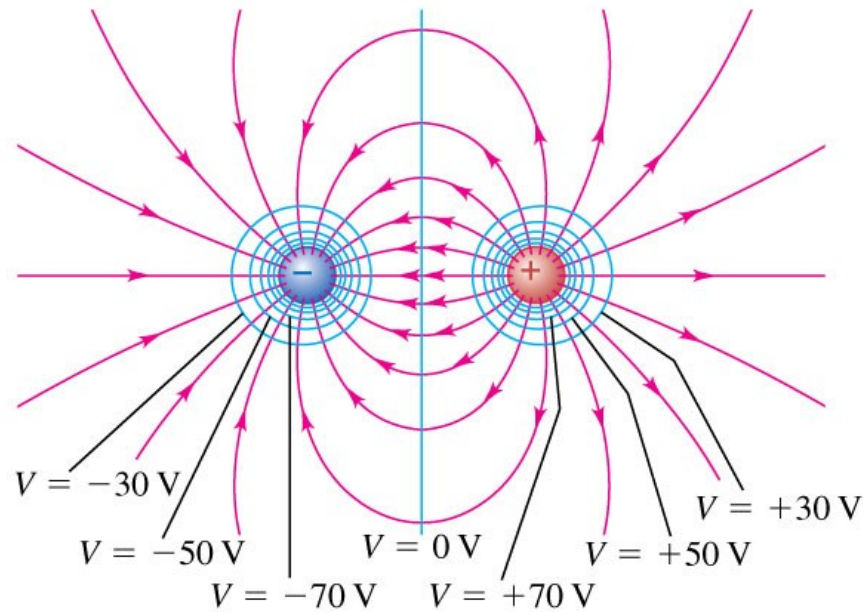
# Equipotential Surfaces and Electric Field Lines

FIG. 2

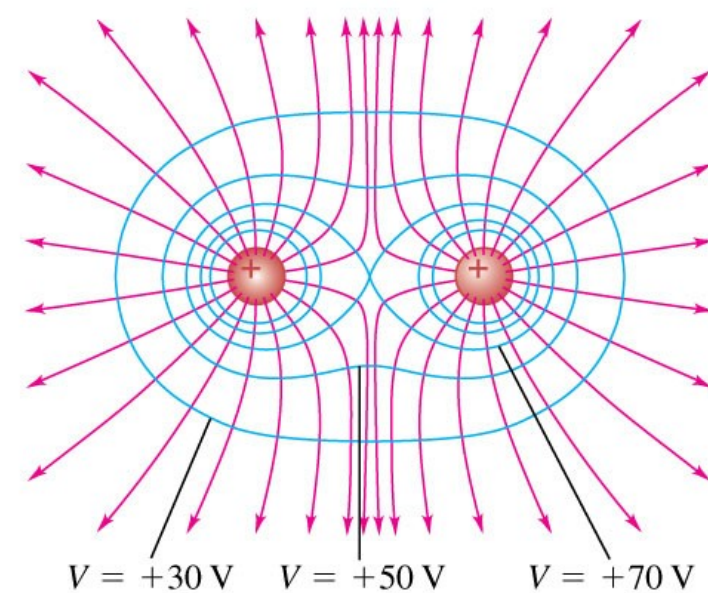
(a) A single positive charge



(b) An electric dipole



(c) Two equal positive charges



— Electric field lines      — Cross sections of equipotential surfaces